REMARKS

Reconsideration and allowance in view of the following remarks are respectfully requested.

Rejection of Claims 35-43, 50-51 and 56-70 Under 35 U.S.C. §103(a)

The Office Action rejects claims 35-43, 50-51 and 56-70 under 35 U.S.C. §103(a) as being unpatentable over Kato (U.S. Patent No. 5,559,557) ("Kato") in view of Azadegan et al. (U.S. Patent No. 5,612,900) ("Azadegan et al."). Applicants respectfully traverse the combination of these references as has been previously argued. Applicants herein shall provide further information and arguments regarding the lack of suggestion or motivation to combine these references.

Applicants have previously argued, in the response filed May 1, 2006, that based on an appropriate analysis of when it is appropriate to combine a plurality of references, one of skill in the art would not have sufficient motivation or suggestion to combine Kato with Azadegan et al. Applicants have argued that the combination requires a modification of Kato from a linear quantization process to a step-wise linear process which can change the principle of operation of the reference. Secondly, we have argued that a benefit articulated by the Examiner of insuring a picture quality across coded regions is already expressly taught in Azadegan et al. and thus one of skill in the art would not have sufficient motivation that the Kato method should be added to provide a duplicate benefit.

In response, the Examiner in the Final Office Action dated August 30, 2006, disagrees and argues that even if the majority of the Kato reference discusses linear quantization, they still mention a non-linear quantization process at column 12, line 67 and thus "[it] is more than enough for one of ordinary skill in the art to incorporate the secondary reference with Kato." The Examiner asserts that the combination is proper. Applicants will further address this

argument and the preponderance of the evidence standard and further reasons why one of skill in the art would not have sufficient motivation to combine these references.

Regarding Applicants' argument that benefits identified in the Office Action which would result from a combination of the references are already experienced in Kato, the Examiner responded by citing Saint Regis Co. v. Bemis Co., Inc., 193 USPQ 8, 11 (7th Circuit. 1997). The Examiner asserts that the case law is "well established" that it is appropriate to make a combination for a "multiplying" effect which in this case is argued to be a synergy of an establishing picture quality and coding. Accordingly, the Examiner maintains the rejection is proper. Applicants further address this issue below and discuss the Saint Regis Paper case and why Applicants' argument adds weight on the scale against the motivation to combine these references.

Saint Regis Paper relates to the validity of U.S. Patent No. 3,650,460 and Reissued Patents 28,317 and 28,318. The invention is a specialized bag which prevents leaking and sifting better than previously existing bags. The U.S. Court of Appeals for the 7th Circuit found that the bags were obvious within the meaning of 35 U.S.C. §103 and reversed the judgment of the District Court which had held that the patents were valid. One patent that the 7th Circuit found to be obvious was the Lokey patent. The Lokey patent recited a bag that consisted of four elements: 1) it has gussets; 2) it has a pinched bottom; 3) it has a three-step feature at the top and bottom; and 4) it has multiple layers. The potential infringer argued that the Poppe patent 2,209,901, incorporates a bag with the first three elements of the Lokey bag. The Court agreed. The challenger further demonstrated that the fourth element of the Lokey bag, its use of multiple layers to achieve the feature of many bags within one, had been known in the bag industries for many years. Based on this argument, the Court stated that it was difficult to conceive of a more obvious method of strengthening a certain type of bag then by putting one bag inside of another.

The Examiner asserts that it is "well established" that a plurality of prior art references can be combined when a primary reference already teaches the beneficial feature that is the motivation for the combinations, Applicants respectfully submit that Saint Regis Paper fails to provide support for this principle. Clearly, the Lockey patent was found to be obvious based on a single reference, not a combination of references. Further, the "multiplying effect" that is taught in the Saint Regis Paper case is simply the application of multiple layers of garbage bags which was found to be obvious. This clearly is not the same principle in which the Examiner applies the facts of Saint Regis Paper. The Examiner uses the discussion around putting one garbage bag inside of another as support for combining two very complex video compression patents and argues that possible duplicate teaching from these two patent applications might have a "multiplying" effect when their teachings are combined. Such an argument in the context of whether it is obvious to one of skill in the art to blend two teachings with two references which might have duplicate benefits or duplicate teachings certainly not be made based on the analysis in the Saint Regis Paper.

Applicants respectfully submit that one of skill in the art would not have sufficient motivation or suggestion combine these references. Applicants have extensively cited the section from the MPEP in its responses regarding the requirements to establish a prima facie case of obviousness. As noted above, the Examiner relies on column 12, lines 60-67 of Kato wherein he mentions that quantizer 115 serves to perform either linear or non-linear quantization in accordance with a qscale_typed signal supplied thereto although not shown in Figure 13. The code "qscale_typed", shown in Figure 10B is immediately below the intra DC precision code and is a single bit code that specifies which of a linear and a non-linear quantization is to be performed. Kato makes clear that the values of the parameter are either 0 or 1 respectively. Accordingly, Applicants do not dispute that non-linear quantization is mentioned in the Kato

reference. However, throughout the remainder of the reference with the exception of the basic introduction of the inverse quantizer 118 in column 13, line 23, Kato focuses entirely on linear quantization of DC coefficients. Applicants argue that what the Examiner has established is merely that the references can be combined or modified as is cited in MPEP 2143.01 with reference to the In re Mills, 16 USPQ 2d 1430 (Fed.Cir. 1990) case. However, when the overall suggestive power of the references are analyzed for what they would suggest to one of ordinary skill in the art, all the teachings of the prior art must be considered and the Examiner must weight the suggestive power of each reference to suggest solutions to one of ordinary skill in the art including considering the degree to which one reference might accurately discredit another. MPEP 2143.01.

As is noted, Figure 14 of Kato discloses a detailed embodiment of the quantizer 115. Although mentioned in Column 12, the use of the qscale_type parameter is not shown in the figures and not discussed throughout the rest of the specification. Figure 14 is introduced in column 15, starting at line 33 and the detailed description of the quantizer 115 fails to mention non-linear quantization. If any suggestion may be drawn by one of ordinary skill in the art when reading this reference in connection with MPEG data, the suggestion weighs against using non-linear quantization and in favor of using linear quantization. For example, column 16, line 12 teaches that the quantization unit 305 is adapted to receive the AC coefficients S303 and the quantization step with signal S18, and to quantize the signal S303 in accordance with the signal S18 to produce quantized AC coefficients, and to supply the quantized AC coefficients as a signal S306 to the blocking circuit 309. Next, Kato highlights and explicitly references his preference for linear quantization. He states "in the case of MPEG data, linear quantization is normally carried out". Thus, Applicants respectfully submit that this reference on the balance

clearly leans strongly towards the identification of linear quantization as the preferred method in the case of MPEG data.

Additionally, the explicit preference for linear quantization is further taught in reference to Figure 15, which shows the detailed embodiment of the inverse quantizer 118. In connection with this figure, there is no information or disclosure regarding the non-linear inverse quantization signal or information and in column 17, lines 40 and 41, Kato states "in the case of MPEG data, linear inverse quantization is normally carried out."

Applicants respectfully submit that because of this disclosure Kato moves beyond merely what its teachings might suggest to one of skill in the art to what is expressly mentioned as the preference in terms of MPEG data. This is particularly important in the context of combining Kato with Azadegan et al. The Abstract of Azadegan et al. states that their disclosure relates to a system and method for determining quantization level verses bit rate characteristics of raw video signals and video frames during a pre-encoding phase for video technologies such as MPEG and MPEG-2. Furthermore, in their Field of the Invention in column 1, starting at line 38, they state that the present invention relates to video encoding systems, such as MPEG and MPEG-2 video encoders and more particularly to video pre-encoders which analyze the bit rate of the pre-encoded digital video in a frame-by-frame basis to determine an average bit rate for each quantization level used in the pre-encoding process. References to MPEG, of course, are found throughout Azadegan et al. For example, in column 7, starting on line 12, they teach that the disclosed system relates to a digital audio visual encoding system and the ideas disclosed therein are useful with any type of video encoding scheme and are particularly applicable to MPEG-2. MPEG-1 and MPEG-2 are collectively referred to in Azadegan et al. as "MPEG" and the MPEG standard specifies only syntax of the compressed or encoded video stream but does not specify how to form compression.

Applicants respectfully submit that it is clear from even the Abstract and first two lines of Azadegan et al. that their disclosure applies primarily to MPEG video compression. The suggestive power of the references is summarized as follow: Kato expressly states that for MPEG data, linear quantization is preferred. Azadegan et al. clearly focuses on MPEG compression. Accordingly, the suggestion to one of skill in the art from Kato is that linear quantization is preferable for MPEG Data and if that person were to review Azadegan et al., he or she would certainly immediately identify that they focus on MPEG data. Applicants respectfully submit that the preponderance of the evidence is against any suggestion or motivation to combine these two references.

Further portions of Kato continue to strengthen Applicants' position. For example, column 3, lines 59-62, states that in the MPEG technique, a value with this 11-bit precision always undergoes a linear quantization process for transformation into an 8-bit integer in a range of 0 to 255. Again, this bolsters Applicants' argument that Kato favors linear quantization and in this quote requires linear quantization.

As introduced above, the Applicants have also asserted that the benefit identified by the Examiner (that the reason a person of skill in the art would combine these references is for the purpose of improving picture quality) would not be obtained by the combination of references. In the Final Office Action, the Examiner states that Azadegan et al. discloses that for video coding using a rate quantizer model, it is known to use a piece-wise for linear scaling function citing column 37, lines 35-45, in order to ensure that acceptable picture quality is maintained across coded regions citing column 8, lines 10-20. However, Applicants respectfully submit that one of skill in the art would not look at Azadegan et al. and their disclosure for the purpose of ensure an acceptable picture quality that is maintained across coded regions. For example, Azadegan et al. do not introduce their benefit as having anything to do with picture quality.

Under the Field of the Invention section, starting at column 1, line 38, they state that their invention relates to video encoding systems, and more particularly to video pre-encoders which analyze the bit rate of the pre-encoded video on a frame-by-frame basis to determine an average bit-rate for each quantization level using the pre-encoding process. The invention is used to encode digital video to fit within a fixed capacity storage medium based on bit-rates of future frames as determined in the pre-encoding process. Accordingly, the identification of the benefit of their approach is clearly focused on ensuring that the encoded digital video will fit upon a fixed capacity storage medium such as a CD. This is further highlighted in the introduction and background of the invention, column 2, starting at line 46, in which they note that in order to provide encoded digital video representing a full-length movie on a single compact disk, various parts of the raw video may be encoded using different quantization levels to produce various image qualities.

To determine the amount of space that a particular section of raw video will consume, the raw video can be pre-encoded at a particular quantization level and the resulting bit lengths of each frame recorded to aid in a later encoding process. To determine the resultant bit rates for different quantization levels, the process can be repeated for the whole raw video multiple times and the result recorded after encoding each frame. However, even though this technique provides the greatest accuracy in which the quantization level can be generated, it can be very time consuming. Accordingly, they note that as a typical movie will last between 1½ hours and 2 hours, even pre-encoding a movie twice using a different quantization level each time would take at least three hours. Applicants simply note that the very benefit of the approach, which the Examiner relies upon, is not a benefit identified by the inventors in Azadegan et al. Their focus is on how to improve the process of pre-encoding movies at a particular quantization level for the

express purpose of being able to encode digital video to fit within a fixed capacity storage medium such as a CD.

Applicants note that under the Summary of the Invention, when the objects of the invention in Azadegan et al. are outlined starting in column 2, line 65 through column 3, line 34, that none of the objects relate to ensuring that an acceptable picture quality is maintained across coded regions. Applicants further note that the Examiner cites column 8, lines 10-20 as the source for the benefit of the teachings of Azadegan et al. However, this portion of the reference merely teaches that step 456 of their invention computes new quantizer values for each macroblock and then determines the number of bits for each frame resulting from the quantizer values determined in step 456. They highlight that this step is important because, in the preferred embodiment, the same number of bits for each frame must be obtained after the quality of some regions are increased while the quality of other regions are reduced. Therefore, in order to determine the number of bits resulting from the new quantizer value, it is necessary to have a function which properly estimates the quantizer level versus the resulting number of bits for each macro block. So to determine the relationship between the resulting number of bits versus the quantizer level, they study the empirical results of a video encoder such as an MPEG-2 encoder to determine the relationship based on actual empirical results. This portion of the reference merely teaches that when adjustments are made in quantizer values that other adjustments may need to be made because it is necessary to obtain the same number of bits for each frame. For example, if one region is identified as having a higher priority that would receive further bits, then another region may need to have a reduced number of bits in order to maintain the same number of bits for each frame. They specifically note that the quality of some regions may be reduced. Accordingly, Applicants would submit that this portion of the reference does not necessarily "ensure that acceptable picture quality is maintained across coded regions" because

this clearly provides for the concept that the number of bits may be adjusted such that the quality in some areas is actually reduced below what may be acceptable in favor of enabling the basic purpose of the invention which is to encode digital video to fit with a fixed capacity storage medium. Thus, rather than teaching what the Examiner suggests as a benefit of the invention, it actually suggests otherwise when it comes to picture quality across coding regions.

Accordingly, Applicants respectfully submit that the foundation upon which the conclusion that it would be obvious to combine these reference is growing weaker. Applicants further incorporate their earlier arguments relative to the concept that Kato already teaches how an increase picture quality can be obtained by increasing the number of quantization bits used for encoding a DC component coefficient. See column 4, lines 34-44 and column 6, lines 6-8. Applicants respectfully submit that as one of skill in the art would review the teachings of Kato that he or she would see that Kato teaches a system where a quantization may be performed using a selected encoding precision which already results in an increase in the number of bits used for encoding to increase picture quality. The increase may be performed at the sequence, group of pictures, pictures, slice, macroblock or block portion of the video signal. See column 4, lines 42-44. Therefore, these references should not be combined because: (1) Kato already teaches and explicitly recites method for enabling an acceptable picture quality throughout the macroblock or picture, (2) Azadegan et al. teach as their purpose a desire to ensure that an encoded digital video signal fits within a fixed capacity storage medium (column 1, lines 43-46) and (3) to accomplish that goal they teach increasing a quality of some regions while requiring a reduction in quality of other regions in order to maintain the same number of bits for each frame (column 38, lines 10-20). Accordingly, one of skill in the art would simply not combine Azadegan et al. into the teachings of Kato for the purpose of ensuring that acceptable picture quality is maintained across coding regions.

Applicants respectfully submit that claims 35-43, 50-51 and 56-70 are patentable and in condition for allowance.

CONCLUSION

Having addressed all rejections and objections, Applicants respectfully submit that the subject application is in condition for allowance and a Notice to that effect is earnestly solicited. If necessary, the Commissioner for Patents is authorized to charge or credit the **Law Office of Thomas M. Isaacson, LLC, Account No. 50-2960** for any deficiency or overpayment.

Respectfully submitted,

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By: _____

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